

ABSTRACT OF THE DISCLOSURE

A superconducting magnet apparatus includes superconducting coils in
5 a vacuum vessel. The vacuum vessel is provided with a refrigerator for cooling
the superconducting coils. The refrigerator includes a motor drive, displacers,
and a cooling cylinder accommodating the displacers such that the displacers
may reciprocate therein. The vacuum vessel has a sleeve for accommodating
the cooling cylinder while isolating them from its vacuum area, the sleeve
10 having an opening near the wall of the vacuum vessel. A first flange is
provided at an opening in the cooling cylinder for inserting the displacers therein.
The motor drive is attached to the first flange, with the displacers being inserted
therein. The first flange has a cylindrical portion to be inserted in the sleeve to
seal the space in the sleeve. The motor drive and the displacers can be
15 removed, while leaving the first flange and the cooling cylinder unremoved.